

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims are listed below for the convenience of the Examiner. No changes have been made. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (withdrawn) An image processing apparatus, comprising:

a first image processing unit to perform a first image process;

a second image processing unit to perform a second image process; and

a control unit to select one of said first image process and said second image process based on a number of colors of a color image to be processed, where said first image processing unit performs the first image process if the number of colors in the color image is large, and said second image processing unit performs the second image process if the number of colors in the color image is small.

2. (withdrawn) An image processing apparatus, comprising:

a color number determination unit to determine a number of colors of a color image;

a first labeling unit using a first labeling method;

a second labeling unit using a second labeling method; and

a control unit to instruct one of said first and second labeling units to perform a labeling process based on the number of colors of the color image, where said first labeling unit performs a labeling process using the first labeling method if the number of colors in the color image is large and said second labeling unit performs a labeling process using the second labeling method if the number of colors in the color image is small.

3. (withdrawn) The apparatus according to claim 2,

wherein said first labeling unit performs the labeling process by clustering color palettes for a color image other than a full-color image, and

wherein said second labeling unit performs the labeling process on the full-color image by an adjacency expanding method.

Claims 4-36 (cancelled)

37. (withdrawn) An image processing apparatus, comprising:
a scanning unit to scan an image in a predetermined direction;
a first counting unit to count a number of picture elements changing from a label other than a first label into the first label;
a second counting unit to count a number of picture elements changing from the first label into another label after at least two continuous picture elements labeled with the first label appear in the scanning direction; and
a third counting unit to count a number of picture elements assigned the first label whose adjacent picture elements in the scanning direction are also assigned the first label, and at least one of whose adjacent picture elements in a direction perpendicular to the scanning direction is assigned a different label than the first label.

38. (withdrawn) An image processing apparatus, comprising:
a unicolor area extraction unit to extract a unicolor area from an input image by comparing a predetermined first threshold with color information about the input image;
a threshold computation unit to compute a second threshold by using a representative value obtained from the color information about the unicolor area; and
a unicolor area re-extraction unit to re-extract a unicolor area from the input image by comparing the second threshold with the color information about the input image.

39. (withdrawn) A method of extracting a pattern, comprising:
enlarging a threshold of a color difference in a first unicolor range for a first color having a low resolution to naked eyes; and
reducing a threshold of a color difference in a second unicolor range for a second color having high resolution to naked eyes for each unicolor area extracted from an input color image.

40. (cancelled)

41. (previously presented) A method of setting a labeling threshold, comprising:
calculating a read resolution of an input image for each color element;
setting a labeling threshold of the input image as a first threshold value based on the read resolution for each color element;
extracting a part of a unicolor pattern from the input image by comparing the first threshold and color information of the input image;

correcting the first threshold to set a second threshold for determining a unicolor range with standard deviation obtained from color variance about the unicolor pattern extracted from the input image; and

extracting a remaining part of the unicolor pattern based on the second threshold.

42. (cancelled)

43. (withdrawn) A method of obtaining an outline length, comprising:
scanning an image labeled in advance in a predetermined direction; and
computing an outline length of a pattern in the image based on a frequency at which a label value changes in a scanning operation.

44. (withdrawn) A computer-readable storage medium storing at least one program embodying a method comprising:

obtaining a maximum value of a color difference between adjacent picture elements corresponding to a luminance value of a color when an image is read; and
entering the maximum value of the color difference for each read resolution into a predetermined data structure.

45. (withdrawn) A computer-readable storage medium storing a program used to perform a labeling process, comprising:

clustering color palettes for color images other than a full-color image; and
processing full-color images by an adjacency expanding method.

46. (previously presented) A computer-readable storage medium storing a program used to control a processor to perform a method comprising:

obtaining read information about an input image by extracting a local area from the input image and extracting color difference information about the input image from the local area;
calculating a read resolution of each color component of the input image;
setting a labeling threshold of the input image as a first threshold according to the read information about the input image by setting a labeling threshold for the input image according to the color difference information;
labeling the input image using the first threshold;
grouping a label pattern obtained by the labeling;

obtaining image information about a group according to image information about a pattern in a same group, including extracting a part of a unicolor pattern from the input image by comparing the first threshold and color information of the input image; and

extracting a pattern according to image information about the group, including

correcting the first threshold,

setting a corrected first threshold as a second threshold for determining a unicolor range according to color information about the unicolor pattern extracted from the input image, and

extracting a remaining part of the unicolor pattern based on the second threshold.